

REVIEW OF SCHREIBMAN'S  
THE SCIENCE AND FICTION OF AUTISM

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Although the awareness of autism in the general public has increased significantly over the past 20 years, much of the widely disseminated information is not fully grounded in scientific fact. In *The Science and Fiction of Autism* (2005), Laura Schreibman addresses a series of debates and controversies in areas ranging from diagnostic practices and etiological theories to effective clinical practices. This book provides an overview of the field of autism that is suitable for well-educated parents and new professionals in the field.

*Key words:* assessment, autism, diagnosis, education, treatment

Public awareness of autism spectrum disorders has increased greatly due to public health efforts, advocacy efforts, and recent popular culture figures who are the parents of children with autism (Centers for Disease Control, 2006; McCarthy, 2008; [www.autismspeaks.org](http://www.autismspeaks.org)). Research foundations and public legislation are creating opportunities for scientific advancement in the understanding of the etiology, assessment, and treatment of autism. However, the layperson may have more difficulty than ever understanding autism due to the barrage of information and misinformation that is currently available through electronic and print media. In Laura Schreibman's (2005) *The Science and Fiction of Autism*, the relatively well-educated layperson and new professionals in the field of autism have a valuable resource for sorting through the information, debates, and controversies surrounding this topic.

Schreibman (2005) actively pursues two important purposes with her tone and specific crafting. First, she makes a pervasive effort to build a bridge between the scientific community

and the invested members of the general public (i.e., parents, nonscience professionals, advocates). Noting the historically adversarial nature of the relationship between these two groups, Schreibman expresses a hope that change in the relationship might parallel that of the HIV/AIDS patients and professionals in which initial controversy and conflict gave way to collaboration. Her language encourages that change by incorporating first person plural language (i.e., we, us) and by acknowledging divisive issues without taking sides. For example, she acknowledges the person-first language controversy over the use of the terms *autistic child* (more common for scientists and professionals) and *child with autism* (strongly endorsed by parents and advocates) and suggests that both arguments have merits. Rather than taking one position over the other, she states her intent to use the terms interchangeably (p. 5).

A second clear purpose is advocacy for critical thinking and the scientific perspective in a manner that is noncombative and common-sense oriented. Statements such as "Let's look at some consequences of *not* thinking critically" (p. 8) put her in a position to outline the problems associated with the use of testimonials and anecdotal reports without directly attacking

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doi: 10.1901/jaba.2010.43-559

prior providers or believers of those reports. Schreibman cogently explains the danger of moving from one report of a treatment success to the conclusion that any other child will benefit the same way. She points out that typically the positive experiences and outcomes are reported widely while “people who experience failures are not likely to write magazine articles or chat with Katie Couric on the *Today Show*,” even though failures may be just as frequent as or more frequent than the successes (p. 10). Schreibman provides simple but powerful advice for the parent searching for hopeful possibilities: Be skeptical and ask basic questions. She reduces the research methods of correlation and controlled studies to their essential elements (e.g., association, replication, elimination of confounding effects) and limitations (e.g., faulty notions of causality in correlational research).

In Chapters 2 through 5, Schreibman provides coverage of the basic information and controversies associated with etiological theories, diagnostic frameworks and assessment procedures, and the core deficits observed in children with autism. These topics are of great interest and importance to parents and professionals, and the book provides precise and nuanced coverage. In particular, Chapters 2 through 4 provide excellent illustrations of the narrative style and the impact of the book. Chapter 2 describes the two core areas of impairment (i.e., social and communicative) and characteristic restricted, repetitive, and stereotyped patterns that constitute the diagnostic features of autism. She also describes other frequently observed characteristics in children with autism (e.g., disruptive behaviors, affective abnormalities, mental retardation) and explains why those are not critical diagnostic features of autism, a point that is often confusing to parents and many professionals. In Chapter 3, Schreibman weaves historical diagnostic and assessment controversies into the current knowledge base and professional debates about comorbidity and the attempts to identify

subgroups of autism spectrum disorders. Her overview of the advancements in assessment frames the different purposes of assessment batteries as useful for screening, research investigations, and access to treatment or funding.

Chapter 4 tackles the area that has arguably produced the greatest number of fictions, debates, and emotionality for parents: the cause and increased prevalence of autism. This chapter is one of the most important for illustrating skepticism and the dangers associated with accepting fictions. Schreibman clearly details the facts related to the etiology of autism, illustrating that autism is not caused by a faulty social environment (i.e., psychogenic theories) or by the measles-mumps-rubella (MMR) vaccination or exposure to mercury. She provides a historically contextualized account of the factors that led to the development of early psychogenic theories of autism and the effects of those theories on the adjustment of parents of children with autism. Next, she proffers several critical questions a skeptical parent or professional might pose to question the validity of psychogenic theories. For example, how is it that a parent (or environment) deviant enough to produce a child with autism can simultaneously produce other offspring that are typical, and how could such well-replicated gender differences in prevalence emerge if psychogenic theory were accurate? This critical thinking analysis is only one paragraph long, but hits exactly on the theme of healthy skepticism that is the hallmark feature of the book.

When detailing the numerous findings that point to a neurobiological basis of autism, Schreibman appropriately cautions the reader that these findings require further replication and that new controversies have arisen within the biomedical research community about which theories hold the most promise. She highlights an important distinction that these new controversies are based primarily on critical scientific inquiry rather than the uncritical

conjecture that characterized early psychogenic theory controversies. The final third of the chapter focuses on the recent controversies on the role of the MMR vaccine and mercury in the etiology of autism. Her historical narrative describes the role of inadequate research in the development of the vaccines controversy and the failure to replicate or corroborate early findings with controlled scientific inquiry. This chapter effectively addresses the overwhelmingly strong motivation for parents and professionals to know the answer to the burning question of “why?” and how that motivation can lead to persisting belief in theories that have been thoroughly debunked. The final note the of the chapter leads the reader back to a question shared by many behavior analysts: “What will research on etiology contribute to effective treatment?” Schreibman uses the example of Down syndrome (etiology known since 1959) as an illustration that knowledge of etiology does not ensure viable treatments for the problem.

In the second half of the book, Schreibman devotes her attention to the myriad of treatments proffered to parents of children with autism. She begins in Chapter 6 by asserting the superiority of the behavioral model and providing a brief history of that approach. Having provided the reader with a basic genealogy of behavioral treatment, Schreibman discusses the common criticisms of behavioral treatment (e.g., “robotic” responding, use of aversive control). Although she accurately captures the most prevalent criticisms lobbed at behavior-analytic treatments, Schreibman seems to cast them as specific to discrete-trial training (DTT). Schreibman uses the term DTT to refer almost exclusively to the methods and procedures used at UCLA in the late 1960s and 1970s and uses an unfortunate term, DTT lite, to refer to modern UCLA model programming, which uses a somewhat less structured trial format and includes refinements based on advances in stimulus control technology and generalization programming. These two approaches are contrasted with the brand of behavioral treatment

that she and colleagues developed, naturalistic strategies such as pivotal response training and incidental teaching. A very clear bias toward the naturalistic approach is evident in the tone and volume of her descriptions of the criticisms of each approach. This bias seems at odds with the evidence-based decision making she encourages in the rest of her book, because the UCLA model has the strongest empirical support for effectiveness with children with autism (Eldevik, Eikeseth, Jahr, & Smith, 2009; Lovaas, 1987; Reichow & Wolery, 2009; Smith, Groen, & Wynn, 2000). A potential concern is that parents who read this chapter would have an undeservedly negative opinion of modern state-of-the-art early intensive behavioral intervention programs.

In Chapters 7 and 8, Schreibman tackles treatments that are not fully validated and those considered debunked, respectively. Schreibman categorizes potentially useful treatments as “likely to be effective” (e.g., floor time, TEACCH) and “less likely to be effective” (sensory-based treatments and pharmacological or nutritional treatments). The background, rationale, and evidence for effectiveness for each treatment are thoroughly yet succinctly described in an accessible fashion. In Chapter 8, Schreibman provides a deservedly aggressive excoriation of debunked interventions, definitively telling the reader that facilitated communication “failed miserably” (p. 208) when evaluated and options therapy lacks “one shred of hard evidence” (p. 223). Her evaluations of these interventions echo her prior cautions about testimonials and anecdotal support over empirical evidence (or lack thereof). This chapter provides an excellent example of scientific skepticism that is understandable to those who are not researchers, and our only wish is the she had additional space to debunk the ever-growing list of unsubstantiated miracle cures.

In Chapter 9, Schreibman examines a few remaining treatment controversies, including the idea of recovery or cure in autism, citing Lovaas’s (1987) seminal study. The impressive

results of that study are not disputed, but the resulting idea of a cure for autism is subjected to scrutiny. She articulates the important questions that have been raised about the procedures and interpretation of the original study, as well as the practicality of intensive early intervention. Unfortunately, Schreibman completed and published the book just before the publication of several successful replication studies (Cohen, Amerine-Dickens, & Smith, 2006; Eikeseth, Smith, Jahr, & Eldevik, 2007; Eldevik *et al.*, 2006; Howard, Sparkman, Cohen, Green, & Stanislaw, 2005; Sallows & Graupner, 2005), so the information in this chapter is somewhat dated. Again, Schreibman's preference for a naturalistic approach surfaces as she soundly but somewhat excessively critiques the Lovaas approach. To her credit, Schreibman goes on to say that a host of factors determine the right treatment for any particular child, concluding that "any attempt to identify the 'best' treatment for autism is ultimately futile; treatments must be individualized and tailored for each child" (p. 251). This assertion leads to an entreaty of all interested parties, parents and researchers alike, to continue to search for the best ways to change the lives of children with autism.

In summary, parents and professionals in the field of autism spectrum disorders have long needed a mass-media book that tackles the controversies and often-believed fictions of autism. The majority of mass-media sources take a convincing but nonscientific approach (McCarthy, 2008) or the perhaps more dangerous pseudoscientific approach (Jepson, Wright, & Johnson, 2007) that propagate controversy and fiction. For example, Jepson *et al.*, who title their book *Changing the Course of Autism: A Scientific Approach for Parents and Physicians*, actually use a pseudoscientific approach when writing about treatments such as secretin. Although the authors acknowledge that several controlled studies indicate no significant therapeutic effects of secretin (see Esch & Carr,

2004, for a review of the experimental studies), they also suggest that because some physicians provide reports of individual children who respond to secretin and because "secretin receptors are found in many of the same brain regions that are affected with autism" it is still reasonable to pursue the treatment. This approach presents exactly the danger that Schreibman (2005) and Green (1996) warn readers about (*i.e.*, convincing but pseudoscientific in that it places common sense and anecdotal report on a par with controlled scientific investigation).

Although there are many virtues of Schreibman's book, one concern is the degree to which the book has a well-defined and targeted audience. Although the topic and tone of the book seem valuable for both parents and new professionals in the field, the writing is perhaps too technical in spots for the comfort of all parents. For example, in Chapter 3 the text becomes overly technical in the description that "the acquisition of language *form* (semantics, syntax, phonology)" is often not delayed, but pragmatics are problematic such that "use of language for social intercourse may be characterized by one-sided, pedantic, egocentric 'conversation' in which they are quite verbose regarding a topic of their own (perhaps idiosyncratic) interest" (p. 60). Some chapters are devoted to topics that are of greater interest to researchers and may be relatively dry for parents and clinicians. For example, the coverage of researchers' efforts to identify core deficits in Chapter 5 has relatively little applied importance and follows Chapter 4 on heated controversies about causes of autism. As a result, the flow or momentum of the book is somewhat disrupted before resuming in Chapter 6 in the coverage of treatment. However, these few concerns are far outweighed by the value of the book in advocating a reasonable and skeptical scientific approach to the controversies that dominate the popular understanding of autism spectrum disorders.

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Received September 14, 2009

Final acceptance November 27, 2009

Action Editor, Timothy Vollmer